

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1, 3, 5-8, 11 and 12 are pending in this application. Claims 1 and 5-7 are amended, and Claim 13 is canceled by the present amendment without prejudice or disclaimer. Applicants respectfully submit that claim amendments find support in the specification as originally filed, at least at page 17, line 24 to page 18, line 12. Thus, no new matter is added.

In the outstanding Office Action, Claims 1, 3, 5-8 and 11-13 were rejected under 35 U.S.C. §112, second paragraph as indefinite; and Claims 1, 3, 5-8 and 11-13 were rejected under 35 U.S.C. §103(a) as unpatentable over Yanagi et al. (U.S. Patent No. 6.111.490, herein “Yanagi”).

With respect to the rejection of Claims 1, 3, 5-8 and 11-13 under 35 U.S.C. §112, second paragraph, as being indefinite, Applicants respectfully submit that the amendment to Claims 1 and 5-7 overcomes this ground of rejection. Particularly, the phrase “the fixed sides” is corrected to provide proper antecedent basis. Accordingly, Applicants respectfully submit that the rejection of Claims 1, 3, 5-8 and 11-13 under 35 U.S.C. §112, second paragraph as being indefinite is overcome.

Applicants respectfully traverse the rejection of Claims 1, 3, 5-8 and 11-13 under 35 U.S.C. §103(a) as unpatentable over Yanagi with respect to independent Claim 1.

Amended Claim 1 is directed to a magnetizing device for a superconductor that includes, in part, a superconductor and a coolant chamber configured to cool the superconductor down to or below a critical temperature at which the transition to a superconducting state occurs. The magnetizing device also includes a magnetic field generating means that generates a magnetic field equal to or higher than a critical magnetic field in which the intrusion of a magnetic flux

into the superconductor starts, with respect to the superconductor cooled down to or below the critical temperature at which the transition to the superconducting state occurs, in a state where there are provided an opposing pair of coils arranged on fixed sides with respect to the superconductor, the opposing pair of coils being disposed so as to sandwich the superconductor, and the pair of coils are formed as spiral coils that generate a conical-shaped magnetic field distribution therebetween, each facing a surface of the superconductor.

Amended independent Claims 5-7 recite similar features with different scopes of invention.

By providing a magnetizing device for a superconductor with the above described magnetic field generating means, the presently claimed invention is configured to generate a conical-shaped magnetic field distribution, wherein the magnetic field is equal to or higher than a critical magnetic field in which the intrusion of a magnetic flux into the superconductor starts. As a result, the presently claimed invention advantageously achieves a magnetization over 1 Tesla at 77K without employing large-scale configuration such as a refrigerator, and thereby enables a compact device with improved performance.

Applicants respectfully submit that Yanagi fails to teach or suggest each of the features of amended Claim 1. For example, Yanagi does not teach or suggest “a magnetic field generating means” as recited in independent Claim 1, and as similarly recited in Claims 5-7.

Yanagi describes a superconducting magnet for magnetizing a bulk high-temperature superconductor.<sup>1</sup> The outstanding Office Action cited figure 31 and column 21, line 54 to column 22, line 2 of Yanagi as reciting “the claimed invention,” as recited in Claim 1.<sup>2</sup> To this end, Yanagi utilizes magnetizing coils 40 and 42 on one or both sides of a superconductor to apply a **uniform magnetic field** to the superconductor.<sup>3</sup> Conversely, the presently claimed invention recites a magnetic field generated by disposing an opposing pair

<sup>1</sup> See Yanagi at column 1, lines 10-18.

<sup>2</sup> See the outstanding Office Action at page 3, lines 3-4.

<sup>3</sup> See Yanagi at column 20, line 66 to column 21, line 3.

of coils to sandwich a superconductor, wherein the coils are formed as spiral coils that generate a **conical-shaped** magnetic field distribution therebetween. As such, Applicants respectfully submit that Yanagi actually teaches away from applying non-uniform magnetic fields to the superconductor, and thus fails to achieve the claimed structure and advantages of the presently claimed invention. In *KSR International Co. v. Teleflex, Inc.*, the Supreme Court affirmed the principle that “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.”<sup>4</sup>

Accordingly, Applicants respectfully submit Yanagi fails to teach or suggest “a magnetic field generating means that generates a magnetic field equal to or higher than a critical magnetic field in which the intrusion of a magnetic flux into the superconductor starts, with respect to the superconductor cooled down to or below the critical temperature at which the transition to the superconducting state occurs, in a state where there are provided an opposing pair of coils arranged on fixed sides with respect to the superconductor, the opposing pair of coils being disposed so as to sandwich the superconductor, and the pair of coils are formed as spiral coils that generate a conical-shaped magnetic field distribution therebetween, each facing a surface of the superconductor,” as recited in amended Claim 1, and as similarly recited in Claims 5-7.

Therefore, Applicants respectfully request the rejection of Claims 1, 3, 5-8 and 11-13 under 35 U.S.C. §103(a) be withdrawn.

Additionally, it is noted that the outstanding Office Action fails to comply with the requirements of 37 CFR §1.104 because not every claim is addressed. The outstanding Office Action provides no analysis for the rejection of independent Claims 5-7 which recite different elements that must be considered. 37 CFR §1.104 states, *inter alia*,

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<sup>4</sup> *KSR International Co. v. Teleflex, Inc. et al.*, 550 US (2007), slip opinion page 12.

The examiner's action will be complete as to all matters...when a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied upon must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.<sup>5</sup>

Applicants respectfully submit that the PTO should clearly indicate the basis for a rejection. MPEP §707.07(d) states “[w]here a claim is refused for any reason relating to the merits thereof it should be ‘rejected’ and the ground of rejection fully and clearly stated.” Furthermore, MPEP §706.02(j) states “[i]t is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply. Furthermore, if an initially rejected application issues as a patent, the rationale behind an earlier rejection may be important in interpreting the scope of the patent claims.” Thus, in any future rejection, Applicants respectfully request that the PTO individually address the subject matter of each of the claims.

To this end, each of independent Claims 5-7 recite different elements than Claim 1. Specifically, Applicants respectfully submit that Yanagi is completely silent regarding an “alternating current power source” as recited in Claims 5 and 7, a “mode changeover switch,” as recited in Claims 5-7, and a “prime mover,” as recited in Claims 6 and 7. Accordingly, Applicants respectfully request this deficient rejection be withdrawn.

Accordingly, Applicants respectfully submit that independent Claims 1 and 5-7, and all claims depending therefrom, be withdrawn.

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<sup>5</sup> 37 CFR §1.104(b) and (c)(2).

Consequently, in light of the above discussion and in view of the present amendment, this application is believed to be in condition for allowance and an early and favorable action that effect is respectfully requested.

Respectfully submitted,

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